

CLAIMS

1/ A composition comprising:

a) a copolymer obtained from a thermoplastic or thermosetting resin and containing at least one alkoxy silane; and

b) a mineral filler selected from compounds of B, Al, Ti, Zn, Zr, Cr, Fe, and silicates, and mixtures thereof.

2/ A composition according to claim 1, in which the thermoplastic or thermosetting resin is selected from the group comprising: polyamide imide (PAI), polyester imide (PEI), polyimide (PI), polyester (PE), polyurethane (PU), polyvinylacetal (PVA), and mixtures thereof.

3/ A composition according to claim 1, in which the copolymer is obtained by adding 10% to 50%, and preferably 20% to 40% by weight of alkoxy silane.

4/ A composition according to claim 1, in which the alkoxy silane is selected from tetraalkoxy silanes such as tetraethoxy silane (TEOS), and trialkoxy silanes such as trimethoxy silane and aminopropyl-trimethoxy silane.

5/ A composition according to claim 1, in which the mineral filler is selected from oxides and nitrides of B, Al, Ti, Zn, Zr, Cr, and Fe, and is preferably titanium dioxide.

6/ A composition according to claim 1, in which the mineral filler is selected from silicates such as clays, nanocomposite clays, and mica.

7/ A composition according to claim 1, comprising 2% to 20% by weight, and preferably 5% to 15% by weight of mineral filler.

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8/ A composition according to claim 1, in which the mineral filler has a specific surface area greater than 40 m²/g.

5 9/ An insulation varnish for a winding wire, the varnish comprising a composition in accordance with claim 1.

10/ A method of manufacturing a composition in accordance with claim 1, the method comprising the following steps:

- 10 · copolymerizing the thermoplastic or thermosetting resin with at least one alkoxysilane;
- adding a mineral filler selected from compounds of B, Al, Ti, Zn, Zr, Cr, Fe, silicates, and mixtures thereof; and
- 15 · homogenizing.

11/ A method according to claim 10, in which synthesis is performed in a solvent selected from ortho-cresyl, meta-cresyl, para-cresyl, cresylic acid, N-methylpyrrolidone, 20 dimethylacetamide (DMAC), and mixtures thereof.

12/ A method according to claim 10, in which the reaction is performed in the presence of a catalyst selected from pTSA, dibutyltin, and a polysiloxane.

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13/ A method of manufacturing a winding wire, the method comprising the following steps:

- applying a varnish comprising a composition in accordance with claim 1 on the wire; and
- 30 · setting the varnish.

14/ A winding wire obtained by the method of claim 13.

15/ A coil comprising a conductor wire covered in a 35 varnish comprising a composition in accordance with claim 1.

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